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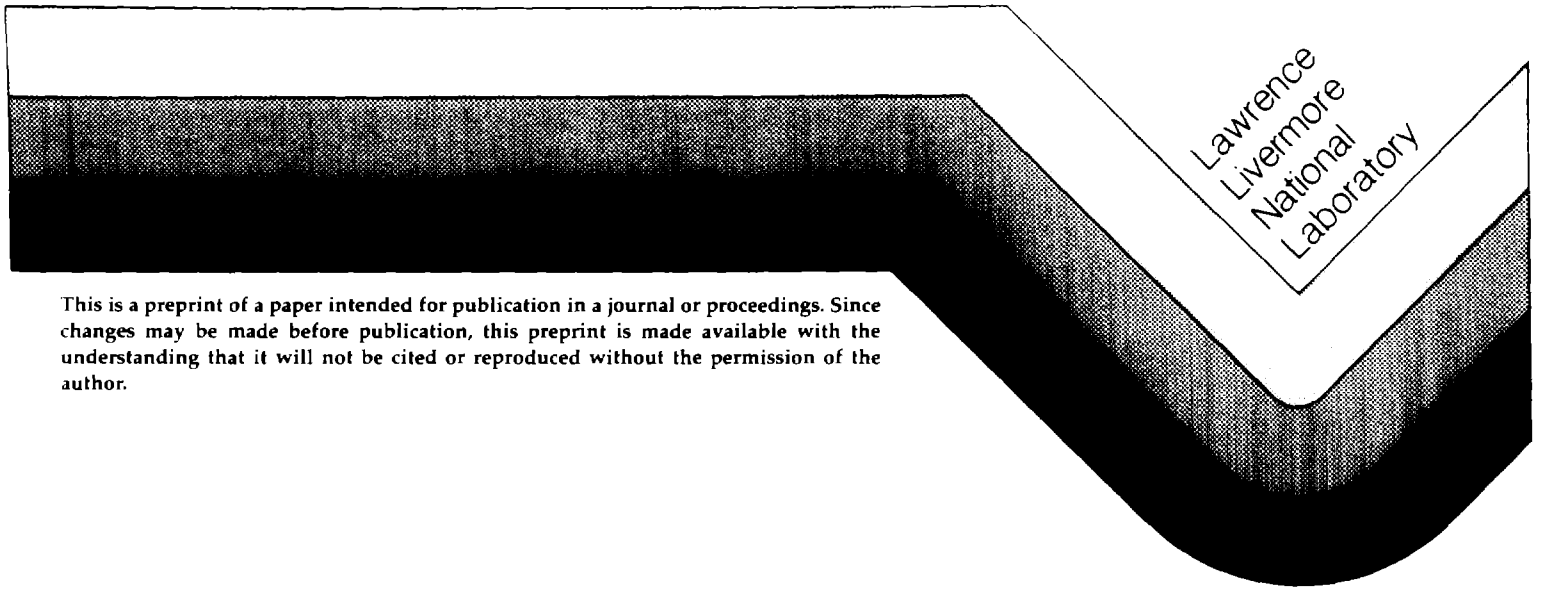

TECHNICAL NOTE

Response of solid-state ion-selective electrodes to quaternary ammonium ions

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Recently it was reported in this journal that bromide and thiocyanate ion-selective electrodes (ISE's) do not respond in Nernstian fashion to bromide and thiocyanate ions in the presence of quaternary ammonium ions [1]. We wish to draw attention to previous work [2] in which we found that the above-mentioned ISE's, as well as many others (including commercial chloride, iodide, cyanide, silver/sulfide, cadmium, cupric, and lead electrodes), can be used as sensors in the potentiometric titration of a variety of anions with quaternary ammonium halides. In addition, these ISE's can also be used as sensors in the reverse titration of quaternary ammonium ions vs anions such as dodecylsulfate. While the largest endpoint breaks were obtained with the iodide/cyanide ISE's, the thiocyanate and bromide electrodes yielded smaller, although sharp, endpoint breaks.

It is also noteworthy that the same solid-state ISE's, as well as some liquid-membrane electrodes, respond in the potentiometric titration of Tl(I) with sodium tetraphenylborate [3].

The mechanism of these responses may be that stated by Khan and Reuben [1]. The users of ISE's should be aware that "ion-selective" electrodes may not be as selective as expected and may, indeed, respond to unexpected ions.

REFERENCES

[1] S. A. Khan and B. G. Reuben, J. Appl. Electrochem. 15 (1985) 969.

[2] W. Selig, Microchem. J. 25 (1980) 200.

[3] W. Selig, Talanta 27 (1980) 914.

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